

Application No.: 10/803114  
Docket No.: UC0401USNA

Page 10

### REMARKS

#### In the Specification:

The Title is amended to include the method of making the composition. No new matter is introduced.

The Abstract is amended for clarification and to delete the legal phraseology. No new matter is introduced.

#### In the Claims:

Claims 3 and 6-28 are pending in the application. Claims 1, 2, 4, and 5 are canceled. Claims 24-28 are added herein.

Claims 1 and 2 is cancelled and the subject matter thereof is provided in new independent Claim 24. New Claim 24 is provided for ease of examination and to address the Examiner's objections. Support for this can be found in original Claims 1 and 2, and at page 3, lines 33-37. No new matter is introduced.

Claim 3, and 10 - 12 are amended to depend from Claim 24 in order to address the Examiner's objections and to recited proper *Markush* language.

Claims 4 and 5 are canceled and rewritten as Claims 27 and 28, respectively, with proper dependency on Claim 24. Support for this can be found in original Claims 4 and 5, and at page 6, lines 21-31. No new matter is introduced.

Claims 3, 6-13, and 15-21 are amended to replace "A" with "The". No new matter is introduced.

Claim 13 is amended to be dependent upon Claim 10. No new matter is introduced.

Claim 22 (the device claim) is amended to dependent from Claim 24 in view of the cancellation of Claims 1 and 2.

Claim 23 is amended to correct an obvious typographical error and change the dependency to Claim 22 (in view of the cancellation of Claims 1 and 2). No new matter is introduced.

Claim 25, depends from Claim 24, and is added to recite that the organic liquid is 80% to 90% by weight of the liquid medium. Support for this can be found at page 3, lines 37-38. No new matter is introduced and no new matter is introduced for examination as this claim is narrower than the "at least 60%" language was set forth in cancelled Claim 2 and now in new Claim 24.

Claim 26, is added to recite that the colloid-forming polymeric acid is a polymeric sulfonic acid which is fluorinated. Support for this can be found at page 8, lines 31-36. No new matter is introduced.

Application No.: 10/803114  
Docket No.: UC0401USNA

Page 11

### Examiner Objections

#### Oath/Declaration

The first Oath and Declaration has the correct inventor names and their respective signatures of the correct inventors. A corrected Application Data Sheet is provided herewith.

#### Ownership

The Examiner has requested clarification of the ownership of the pending claims. All of the subject matter of the pending claims was commonly owned, at the time of the invention, including an obligation by DuPont Displays, Inc., a wholly owned subsidiary of E.I. DuPont de Nemours and Company, to assign 100% of all of its the rights, title and interest in the subject matter of the pending claims to E.I. DuPont de Nemours and Company.

#### Drawings

The Examiner has objected to the Drawings as failing to comply with 37 C.F.R. 1.84(p)(5), because they include reference character 100, not mentioned in the description. A Replacement Drawing Sheet and Annotated Sheet are submitted herewith. The reference character 100 has been deleted.

Applicants respectfully submit that this objection has been overcome, and request that it be withdrawn.

#### Specification

The Examiner has objected to the Abstract because of legal phraseology and because "the applicant does not set forth in detail that which is new in the art". The Abstract is amended to delete the legal phraseology and to more specifically state that organic formulations of conductive polymers are provided.

The Examiner has further objected to the Title. Applicants respectfully disagree with the Examiner's objection to the title and submit that "Organic Formulations Of Conductive Polymers Made With Polymeric Acid Colloids" is, in fact, descriptive. Notwithstanding, the Title is amended to include methods for making the formulations.

Applicants respectfully submit that these objections have been overcome and request that they be withdrawn.

#### Claims

The Examiner has objected to Claims 4 and 5 as being of improper dependent form. These claims are canceled and the subject thereof rewritten as Claims 27 and 28, respectively, and each of the new claims dependent on Claim 24.

Application No.: 10/803114  
Docket No.: UC0401USNA

Page 12

The Examiner has objected to Claims 3-13 and 15-21 because of the use of "A" instead of "The". The Claims are amended to make that correction.

Applicants respectfully submit that these objections have been overcome and request that they be withdrawn.

**Rejections Under 35 U.S.C. § 112**

- (a) Claim 2 was rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. This claim is canceled.
- (b) Claims 3, 4, 5, 7, 8, 10, 12, 15-17, 19-21, and 23 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite because of improper *Markush* group language. The claims have been amended to address the Examiner's objections.
- (c) Claim 13 was rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for insufficient antecedent basis. Claim 13 is amended to depend on Claim 10, which recites "polymeric sulfonic acid".

Applicants respectfully submit that these rejections have been overcome and request that they be withdrawn.

**Rejections Under 35 U.S.C. § 102**

Claims 1-4, 8-11, 14-16, 19, and 22-23 were rejected under 35 U.S.C. § 102(b) as having been anticipated by U. S. patent 5,300,575 ("*Jonas*"). Applicants respectfully traverse this rejection.

The rejection will be addressed with respect to each of the independent claims, Claims 14 and 24. Because these claims are directed to novel and non-obvious subject matter, the pending dependent claims are likewise novel and non-obvious.

**(1) Claim 14**

Claim 14 is drawn to a method. The method comprises:

- polymerizing a pyrrole or thiophene monomer in the presence of at least one colloid-forming polymeric acid in an aqueous liquid medium;
- removing an amount of aqueous liquid medium to form partially dried solids;
- and
- dispersing the partially dried solids in an organic liquid.

It is respectfully submitted that there is no teaching or suggestion of this process in *Jonas*. The Examiner pointed to column 4, lines 50-55 of *Jonas* for support for this rejection. However, this section of *Jonas* refers to the formation of an antistatic coating of polythiophene on a plastic molding. The liquid medium containing the polythiophene and polyacid is applied as a solution -- not a colloid aqueous liquid medium -- to the plastic

Application No.: 10/803114  
Docket No.: UC0401USNA

Page 13

molding and then dried. The Examiner has indicated that the drying process involves the removal of water. Applicants agree. However, the coated film in *Jonas* is simply dried. It is not, as partially dried solids, *dispersed in an organic liquid*, as recited in Applicants' Claim 14.

(2) Claim 24

Claim 24 is directed to a composition. The composition comprises at least one polythiophene or polypyrrole and at least one colloid-forming polymeric acid, dispersed in a liquid medium, which is at least 60% by weight of an organic liquid. *Jonas* discloses dispersions of polythiophenes in the presence of polyanions. The polyanions are anions of polymeric acids, referred to as "polyacids". The polyacids are dissolvable in organic solvent or, preferably, water. See *Jonas* column 3, lines 19-25. By contrast, Applicants' polymeric acid is colloid-forming and not soluble in water. *Jonas* further states the polythiophene can be formed in the presence of polymer lattices or dispersions. These are water-based systems. There is no teaching or suggestion in *Jonas* of adding an organic liquid to them, let alone a liquid medium that is at least 60% by weight of an organic liquid, as recited in Applicants' Claim 24.

Furthermore, there is no teaching or suggestion in *Jonas* of a polyacid that is a colloid-forming fluorinated sulfonic acid, as recited in Applicants' Claim 26. Nor is there any teaching or suggestion in *Jonas* of a polyacid that is a colloid-forming perfluoroethylene sulfonic acid, as recited in Applicants' Claim 13.

Claims 3, 6-9, 11-13, 22, 25, 27, and 28 are dependent on Claim 24, and therefore also are not taught or suggested by *Jonas* for all the reasons given above.

Claims 15-21 are dependent on Claim 14, and therefore also are not taught or suggested by *Jonas* for all the reasons given above.

Applicants respectfully submit that the rejection under 35 U.S.C. § 102(b) has been overcome, and request that it be withdrawn.

Rejections Under 35 U.S.C. § 103

Jonas et al., U.S. Patent 5,300,575, in view of Han et al., U.S. Patent 5,185,100, and Hsu, U.S. Publication 2004/127637

Claims 1-12, 14-17, 19, and 21-23 were rejected under 35 U.S.C. § 103(a) as having been unpatentable over Jonas et al., U.S. Patent 5,300,575 ("*Jonas*"), in view of Han et al., U.S. Patent 5,185,100 ("*Han*"), and Hsu U.S. Publication 2004/127637 ("*Hsu '637*"). Applicants respectfully traverse this rejection.

As an initially matter, *Hsu '637*, having publication of July 2004, were at the time of its invention and is commonly owned with the pending application. The pending application

Application No.: 10/803114  
Docket No.: UC0401USNA

Page 14

was filed on March 17, 2004, a full three and one-half months prior to *Hsu* '637, and thus should not be used as citable art against the pending claims.

*Han* discloses electrically conductive polymers having conjugated backbones, which are doped with one or more non-oxidizing protonic acid. The polymers can be polythiophene or polypyrrole. The preformed polymers are treated with the doping acid in the solid state or in solution. However, there is no teaching in *Han* that would make up for the deficiencies in *Jonas*, as discussed above. There is no teaching or suggestion in *Han* of colloid-forming polymeric acids, as recited in Applicants' Claim 24, or of fluorinated sulfonic acids or perfluoroethylene sulfonic acids, as recited in Applicants' Claims 26 and 13, respectively. There is no teaching or suggestion in *Han* of any of the steps in Applicants' Claim 14. In *Han*, the acid is added to the polymer in *Han* after the polymerization step, whereas in Applicants' claimed method the pyrrole or thiophene monomer is polymerized in the presence of the colloid-forming polymeric acid. The polymers in *Han* are formed into films and dried, but there is no teaching of dispersing partially dried solids in an organic liquid, as in Applicants' Claim 14. Furthermore, Applicants can find no motivation to combine the teachings of *Jonas* and *Han*. *Han* is directed to any electrically conductive polymer, but exemplifies only arylene vinylene type polymers. Whereas *Jonas* is directed only to polydioxithiophenes. One of ordinary skill in the art would not look to *Han* for materials to use in *Jonas*.

The *Hsu* '637, which is commonly owned by the same owner as the above referenced pending application, and teaches polyaniline compositions with colloid-forming polymeric acids, which may also include conductive additives. *Hsu* '637 does not make up for the deficiencies of *Jonas* and *Han*. *Hsu* '637 does not teach polythiophene or polypyrrole compositions with colloid-forming polymeric acids dispersed in a liquid medium which is at least 60% by weight of an organic liquid, as recited in Applicants' Claim 24. *Hsu* '637 does not teach a method of partially drying polypyrrole or polythiophene that has been polymerized in the presence of a colloid-forming polymeric acid, and then dispersing the partially dried solids in an organic liquid, as recited in Applicants' Claim 14. Applicants submit that *Jonas*, *Han*, and *Hsu* '637, taken individually or collectively, do not disclose Applicants' inventions as recited in Claims 14, 24, and 29, and all the claims dependent thereon. Applicants respectfully request that this rejection be withdrawn.

- (2) Jonas et al., U.S. Patent 5,300,575, in view of Han et al., U.S. Patent 5,185,100, and Hsu, U.S. Publication 2004/127637 and further in view of Hsu et al., U.S. Publication 2004/0254297

Claim 13 was rejected under 35 U.S.C. § 103(a) as having been unpatentable over Jonas et al., U.S. Patent 5,300,575 ("*Jonas*"), in view of Han et al., U.S. Patent 5,185,100 ("*Han*"), and Hsu U.S. Publication 2004/127637 ("*Hsu* '637"), and further in view of Hsu et

Application No.: 10/803114  
Docket No.: UC0401USNA

Page 15

al., U.S. Publication 2004/0254297 ("*Hsu '297*"). Applicants respectfully traverse this rejection.

As an initially matter, *Hsu '637*, having publication of July 2004, and *Hsu '297*, having a publication of December 2004, were at the time of their inventions and are commonly owned with the pending application. The pending application was filed on March 17, 2004, a full three and one-half months prior to the publication of *Hsu '637*, and nearly nine months prior to the publication of *Hsu '297*. Thus, neither of the *Hsu* references should be used as citable art against the pending claims.

Nevertheless, the Examiner's comments are addressed. The Examiner has pointed to *Hsu '297* as teaching perfluoroalkylenesulfonic acid. While this may be true, such as teaching is not sufficient to overcome the deficiencies of the *Jonas*, *Han*, and *Hsu '637* references, discussed in detail above. Moreover, the combination of *Jonas*, *Han*, *Hsu '637*, and *Hsu '297* does not teach polythiophene or polypyrrole compositions with colloid-forming polymeric acids dispersed in a liquid medium which is at least 60% by weight of an organic liquid, as recited in Applicants' Claim 24. The combination of references does not teach a method of partially drying polypyrrole or polythiophene which has been polymerized in the presence of a colloid-forming polymeric acid, and then dispersing the partially dried solids in an organic liquid, as recited in Applicants' Claim 14.

Applicants submit that *Jonas*, *Han*, *Hsu '637*, and *Hsu '297*, taken individually or collectively, do not disclose Applicants' inventions as recited in Claims 14 and 24 and all the claims dependent thereon. Applicants respectfully request that this rejection be withdrawn.

- (3) *Jonas et al.*, U.S. Patent 5,300,575, in view of *Han et al.*, U.S. Patent 5,185,100, and *Hsu U.S. Publication 2004/127637* and further in view of *Facci*, U.S. Patent 5,258,461

Claims 18 and 20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Jonas et al.*, U.S. Patent 5,300,575 ("*Jonas*"), in view of *Han et al.*, U.S. Patent 5,185,100 ("*Han*"), and *Hsu U.S. Publication 2004/127637* ("*Hsu '637*"), and further in view of *Facci*, U.S. Patent 5,258,461 ("*Facci*"). Applicants respectfully traverse this rejection for all of the reasons stated above with respect to the *Jonas*, *Han*, and *Hsu '637* references.

The Examiner has pointed to *Facci* as teaching the organic liquids with high boiling points of Applicants' Claims 18 and 20. While Applicants agree that high boiling solvents are disclosed in *Facci*, Applicants submit that no other element of Applicants' claims are taught or suggested in *Facci*. Nor would one of ordinary skill in the art combine the teaching of *Facci* with any of *Jonas*, *Han*, or *Hsu '637*.

*Facci* is drawn to polymer blends in a mix of solvents, and films formed with the blends. The films can be formed by an electrophoretic deposition process and are useful as substrates for electrophotographic imaging members. See *Facci* column 12, lines 14-37. The list of possible solvents in column 8 of *Facci* includes those of Applicants' Claim 20.

Application No.: 10/803114  
Docket No.: UC0401USNA

Page 16

However, the list of possible polymers in *Facci* does not include polythiophenes, polypyrroles or polymeric acids, as recited in Applicants' claims. See *Facci* column 7, line 35, to column 8, line 17. There is no teaching or suggestion in *Facci* of Applicants method, as recited in Applicants' Claim 14.

Furthermore, Applicants can find no motivation to combine *Facci* with *Jonas*. One of ordinary skill in the art of electrically conductive polymers as antistatic coatings (*Jonas*) would not look to a reference teaching film substrates for electrophotographic imaging (*Facci*) to choose a solvent.

Applicants submit that *Jonas*, *Han*, *Hsu '637*, and *Facci*, taken individually or collectively, do not disclose Applicants' inventions as recited in Claims 14, 24, and 29, and all the claims dependent thereon. Applicants respectfully request that this rejection be withdrawn.

#### Double Patenting

Claims 1, 3-4, 7-13 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1-8 of copending Application No. 10/802,704, DuPont Docket No. UC 0362, (*'Hsu '704*).

Moreover, Applicants respectfully submit that the *'704* reference does not teach or suggest Applicants' invention. Newly added Claim 24, which replaces original Claim 1, is drawn to a composition comprising a polymer selected from at least one of a polypyrrole, a polythiophene, and a combination of such polymers, and at least one colloid-forming polymeric acid dispersed in a liquid medium comprising *at least 60% by weight of an organic liquid*. The *'704* application teaches at page 15, lines 12-15, that the organic solvent should be less than 60% by volume. Most of the solvents listed in *Hsu '704* have a density of 1.0 or less, and therefore would be present in an amount less than 60% by weight.

Applicants further request that the double patent rejection be held in abeyance until such time as claims are otherwise determined to be allowable. As discussed above, these applications were commonly owned at the time each of the inventions was made and if necessary, a terminal disclaimer will be filed.

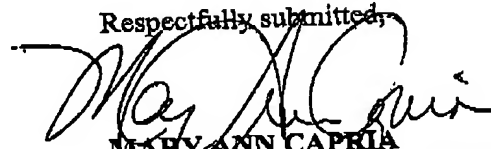
Application No.: 10/803114  
Docket No.: UC0401USNA

Page 17

**Conclusion**

In view of the foregoing amendments and remarks, a Notice of Allowance of the above-referenced application is respectfully requested.

Respectfully submitted,



MARY ANN CAPRIA  
ATTORNEY FOR APPLICANTS  
Registration No.: 32,659  
Telephone: (302) 992-3749  
Facsimile: (302) 892-7949

Dated: October 18, 2005



Atty.: Mary Ann Capria

Phone: 302-992-3749

w/ Amendment and Remarks 10/18/2005

1/1

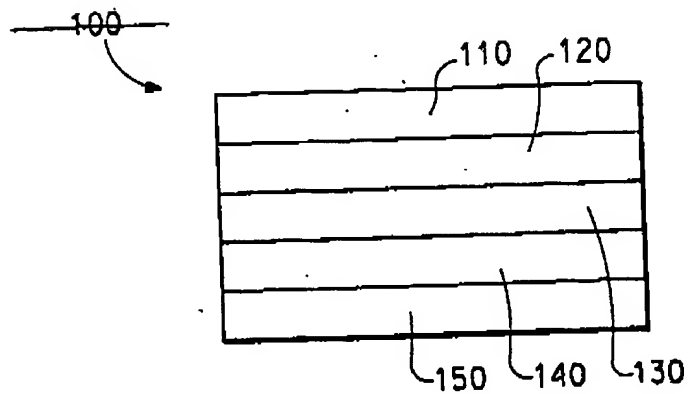


FIG. 1

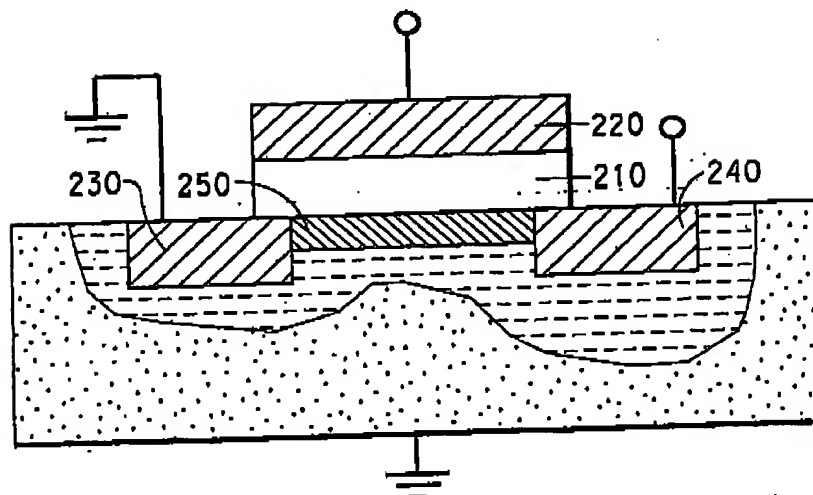


FIG. 2